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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

August 8, 2002

Mr. Roy Schepens
United States Department of Energy
Office of River Protection
P. O. Box 450, MSIN: H6-60
Richland, Washington 99352

Mr. Edward S. Aromi, Jr.
CH2M Hill Hanford Group, Inc.
P.O. Box 1500, MSIN: H6-63
Richland, Washington 99352

Dear Messrs. Schepens and Aromi:

Re: Notice of Non-Compliance for deficient leak detection in single-shell tank farms.

On July 23, 2002, the Washington State Department of Ecology (Ecology) conducted an inspection into the use and management of temporary (hose-in-hose) transfer lines by the United States Department of Energy-Office of River Protection (ORP) and its contractor CH2M Hill Hanford Group Incorporated (CHG), at Hanford single-shell tank farms. The temporary lines are ancillary equipment to Hanford tank systems per Washington Administrative Code (WAC) 173-303-040 and, therefore, are subject to the requirements of Chapter 40, Code of Federal Regulations (40 CFR).

This inspection revealed two violations of tank system regulatory requirements and two concerns as follows:

VIOLATIONS:

1) **40 CFR Subpart J, 265.193, Containment and detection of releases by reference of WAC 173-303-400, Interim Status Facility Standards (leak detection).**

ORP and CHG failed to provide a leak detection system designed and operated to adequately detect the failure of the temporary transfer line supporting saltwell pumping of single-shell tank SX-103 per 40 CFR 265.193(c)(3).

Temporary (hose-in-hose) transfer lines were installed through the SX, S and SY tank farms to bypass existing direct buried transfer lines. However, the replacement lines were not provided adequate leak detection to meet regulatory requirements to detect a leak within 24-hours or at the earliest practicable time.

Leak detection of these temporary transfer lines depends primarily upon drainback from the transfer line encasement to conductivity probes installed in valve pits along the transfer route. For these conductivity probes to be effective, a small volume of liquid must collect in the bottom of the valve pit. A berm around the drain from each valve pit allows collection of sufficient liquid to activate the conductivity probe in the event of a leak. However, a breach of the berm had been created by ORP and its contractors in such a manner to allow drainage of all liquids from the valve pit. This breach was sized to provide leak detection by the conductivity probe so long as the flow rate into the pit exceeded the drainage out of it. A flow rate of 2 gallons per minute (gpm) is required to provide sufficient liquid accumulation to activate the leak detectors in valve pits in which the berm has been breached. However, at the time of Ecology's July 23 inspection, SX-103 was undergoing pumping at a rate of 1.14 gpm. Also, the pumping rate at the time of the January 2002 failure of the hose-in-hose assembly was also below 2 gpm Occurrence Report #RP-CHG-TANKFARM-2002-0007 issued in response to the January transfer line failure, states that the leak detector in the SX-A valve pit did not alarm. Therefore, the leak detection system in place was rendered ineffective and does not meet regulatory requirements to detect a leak within 24-hours or at the earliest practicable time.

Visual detection of a leak from the transfer system is not possible due to shielding in place over the transfer system. Radiological surveys of the transfer route during pumping would only detect a significant leak from the secondary encasement of the transfer line. Mass balance determinations calculated from liquid level equipment readings within the sending and receiving tank are subject to significant error and are not sufficiently accurate to detect a leak from the transfer system in a timely manner.

2) 40 CFR Subpart J, 265.193, Containment and detection of releases by reference of WAC 173-303-400, Interim Status Facility Standards (waste removal from secondary containment).

ORP and CHG failed to operate the temporary transfer line installed to support saltwell pumping of single-shell tank SX-103 to be capable of removing waste from secondary containment within 24 hours, or in as timely a manner as is possible, per 40 CFR 265.193(c)(4).

As of July 23, 2002, the ORP and CHG have not removed liquid mixed waste from the secondary containment of the temporary transfer line between valve pit 241-SX-A and 241-S-C following failure of the primary line within the encasement on January 9, 2002. A plan (RPP-10131) for

removal of the liquids from the secondary containment of the SX temporary transfer lines was not developed until March 8, 2002. Ecology was advised by contractor personnel during its July 23 inspection that the liquids within the secondary containment of the SX temporary transfer line would not be removed until September 2002 at the earliest. Ecology has not been provided with overall operating plans from ORP or CHG to address removal of waste from secondary containment of temporary transfer lines.

CONCERNS:

1) The temporary, hose-in-hose, transfer lines in use at Hanford tank farms meet the definition of ancillary equipment per WAC 173-303-040. However, a number of regulatory requirements have not been met for use of these lines (i.e. containment and detection of leaks). Use and management of these temporary transfer lines must meet regulatory requirements as ancillary equipment.

2) Little planning appears to have been undertaken by ORP or CHG regarding the duration of use or final disposition of the temporary transfer lines. Given the relatively short useful life of the lines (three years in service) disposal of these lines represents a significant volume of mixed waste entering the overall Hanford waste stream in the near term. Ecology is concerned that the life-cycle of these transfer lines is severely under-planned.

In order to correct the violations identified in this notice of non-compliance, please complete the following corrective measures within the time frames specified. Failure to correct the violations described in this letter may result in the issuance of an administrative order and/or penalties per Revised Code of Washington (RCW)70.105.080. A request for additional time to complete the corrective measure identified in this notice of non-compliance must be in writing, describe the reasons for the request for additional time, and received by me for consideration no later than September 2, 2002.

CORRECTIVE MEASURES:

1) **40 CFR Subpart J, 265.193, Containment and detection of releases by reference of WAC 173-303-400, Interim Status Facility Standards (leak detection) .**

Within 30 days of receipt of this letter ORP and CHG must submit for Ecology's approval a report to Ecology that includes the following elements:

- A tabular listing of all valve pits, diversion boxes, pump pits or any other tank system component within any Hanford tank system (SST, DST or other) which provides leak

detection to any temporary transfer system. At a minimum this tabular compilation must include columns, correlating one to another, that describe the leak detection devices installed in each tank system component and the limitations for detecting a leak of each component. The description of the limitation of each component for detecting a leak must include a description of any modification made to the leak detection system, the amount of liquid required to activate the leak detector device, the pump rate and leak rate required to activate the leak detector device, the amount of liquid that would accumulate in the secondary containment of each temporary transfer line before the leak detector at each component location would activate, and any other information pertinent to the functioning of each leak detector device.

2) 40 CFR Subpart J, 265.193, Containment and detection of releases by reference of WAC 173-303-400, Interim Status Facility Standards (leak detection) and (waste removal from secondary containment).

Within 60 days of receipt of this letter ORP and CHG must submit, for Ecology's approval, a Hanford tank system temporary transfer line management plan applicable to any Hanford tank system (SST, DST or other) for management of temporary transfer lines within any Hanford tank system. This site-wide temporary transfer line management plan must include the following elements at a minimum:

- The approved tabular listing described in Corrective Measure 1 above including procedures for keeping the listing current. A current listing is to be maintained in Hanford tank systems operating record(s).

- A system for tracking the installation of all temporary transfer lines within Hanford tank systems to ensure they do not exceed their design life in service. This tracking must be maintained in the single-shell tank operating record.

- A description of how all temporary transfer lines, present and future, will be installed, maintained and operated with leak detection sufficient to meet the requirements of 40 CFR 265.193(c)(3).

- A description of how all temporary transfer lines, present and future, will be installed, maintained and operated to remove any accumulated liquids from the secondary encasement per the requirements of 40 CFR 265.193(c)(4).

- A schedule, including identification of and coordination with all organizations as required, for removing, transporting, storing and disposal of all temporary transfer lines, present and future.

- A description of the actions, procedures, policies and schedules to be implemented for comprehensive life-cycle management of all temporary transfer lines from procurement through disposal. Descriptions of life-cycle management must include full and complete descriptions of waste volume estimates, techniques for waste minimization, description of waste designation and plans for ultimate disposal of all temporary lines and their associated components.

If you have any questions regarding this letter, please contact me at (509) 736-3031.

Sincerely,

Bob Wilson

Bob Wilson
Compliance Specialist
Nuclear Waste Program

BW:nc

cc: Phil Miller, CHG
Robert Barr, ORP
Ken Niles, OOE
Administrative Record: TWRS

CERTIFICATE OF COMPLIANCE

As a legal representative of the United States Department of Energy, I certify to the best of my knowledge, the completion of items requested by the Washington State Department of Ecology on August 8, 2002, with regard to the inspection of the use and management of temporary transfer lines within the single-shell tank system on the Hanford Site, Facility ID number WA 7890008967 as shown below.

COMPLIANCE STATUS

Corrective Measure	Date Due	Date Complete	Initials	Comments
1	09/23/02			
2	11/04/02			

Signature, USDOE-RL Representative Date